



BRIEF ON APPEAL

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I. REAL PARTY IN INTEREST

The real party in interest is the recorded assignee, Hitachi, Ltd.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

Claims 4, 8, and 20-25 claims 4, 8, and 20-25 stand for consideration in this application. The rejections of claims 4, 8, and 20-25 under 35 U.S.C. §103(e) are being appealed.

IV. STATUS OF AMENDMENTS

No amendment was filed after the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Embodiments of the present invention are related to information management servers that can be implemented to utilize video content from a lecture course for tailoring educational contents to match the learning conditions of a student and also to provide instruction using these same contents. (Para. [0001]) Embodiments can be implemented to provide for indicating points in video information already viewed or to be viewed that are not understood by the student, as well as to provide for creating contents for enhancing the degree of comprehension of those points within the video

information. Exemplary embodiments can be implemented to provide effective tutoring by finding the learning level of each among many students. (Para. [0019]).

More specifically, Appellant's invention as presently claimed in independent claims 4, 21, and 23 is directed to new and non-obvious information management servers that may be connected a student terminal for distributing lecture course contents to the student terminal. Figure 1 illustrates an example of a distribution system in which an embodiment of such an information management server is implemented. The distribution system of Figure 1 includes an instructional information management server 101 for accumulating learning-related information, analyzing the accumulated information and distributing the analyzed information. The information management server 101 is connected to multiple student PCs 103 via a network 200 and implemented to distribute educational information for instructing a plurality of students using the student PCs 103 in the contents of a particular class or lecture. (Para. [0046]).

Similarly, claims 4, 21, and 23 each describe an information management server that comprises an accumulator section, a holding section, a send section, an analyzer section, a matcher section, and a control section. For example, an embodiment of such an information management server 101 is illustrated in Figures 2 and 6, and generally described in paragraphs [0049]-[0052] and [0061]-[0067].

In the present invention, the accumulator section operates to accumulate electronic data on the lecture contents being distributed by the information management server. For example, the present application explains, with reference to Figures 1, 2, and 6, that a video storage server 104 can acquire and accumulate video information

and audio (including voice information) information filmed from a lecture (para. [0043]), and that that the exemplary information management server 101 receives video frame data, audio data, and digital board data from the video accumulator server 104 that has been converted from the video and audio information. (Para. [0061]). The information management server 101 accumulates this received data in as basic contents in a data storage area 101306 of a hard disk 1013 (para. [0084]) by executing a basic contents data integrated recognition program 101206 to store the basic contents as integrated data with a time stamp along a time axis. (Para. [0062]).

The holding section of the information management server operates to hold lecture-related information including a plurality of problems relating to the lecture contents being distributed by the information management server. For example, the present application explains, with reference to Figures 2 and 6, that the hard disk 1013 of the exemplary information management server 101 includes a review problem data store 101303, an instructional material data store 101304, and a true-false data store 101305. (Para. [0052]).

The analyzer section of the information management server operates to analyze the lecture-related information and electronic data on the lecture contents being distributed by the information management server. In particular, the analyzer section is configured to extract text information from the lecture-related information, to extract text information video information contained in the lecture contents, and to extract text information from audio information contained in the lecture contents. The analyzer section is further configured to add time information relating to the lecture contents to the extracted text information per sentence

For example, the present application explains, with reference to Figures 2 and 6, that the exemplary information management server 101 includes a video recognition program 101204, an audio recognition program 101203, and a review problem creation program 101207. The video recognition program 101204 extracts text information and drawing information from the accumulated video frame data, adds time information to it, and stores it as time-stamped video text data in the hard disk 1013. The audio recognition program 101203 extracts text information from the accumulated audio data, adds time information to it, and stores it as time-stamped voice text data in the hard disk 1013. (Para. [0061]). The review problem creation program 101207 extracts text information contained in the student instructional material and review problem contents stored in the review problem data store 101303, the instructional material data store 101304, and the true-false data store 101305 of the hard disk 1013. (Paras. [0095], [0101]).

The present application further explains, in paragraphs [0062] and [0088], that the time-stamped video text data and the time-stamped voice text data are stored by a basic content data integrated recognition program 101206 in the hard disk 1013 as integrated data time-stamped along a time axis. Paragraphs [0085] and [0088] also explain that the voice text data is divided into time-stamped sentences by the audio recognition program 101203, and that the basic contents data integrated recognition program 101206 creates integrated data with time stamps matching a time base, from the time-stamped voice text data and the time-stamped video text data for storage in the data storage area 101306, as shown in the example illustrated in Figure 10.

In the present invention, the matcher section of the information management server operates to link the lecture-related information with said lecture contents based on the results of the analysis performed by the analyzer section. In particular, the matcher section operates to link the video information with the lecture-related information based on a comparison of the text information extracted by the analyzer section. For example, paragraph [0063] of the present application explains, with reference to Figures 2 and 6, that an exercise problem creation program 101207 collates the integrated, time-stamped text data with a word dictionary stored in the hard disk 1013 and then extracts locations in the integrated data where the same term frequently occurs. The student text and the review problem data stored in the hard disk 1013 are also collated with the word dictionary in the same way and frequently appearing words are extracted. Then, video frame data for review problems linked to a review problem number are created for locations where the frequently appearing words in the integrated data matches the review problem data and course material data. The operations performed by the exercise problem creation program 101207 are also further explained in greater detail in paragraphs [0095]-[0098] and [0105] with reference to Figures 11 and 12.

The matcher section is also configured to extract words from the extracted text information and then extract time information on word locations where specified words frequently appear in the extracted text information. The matcher section is further configured to extract both the video information and the audio information corresponding to these specified words in each sentence with the time information. For example, the present application explains that the exercise problem creation program

101207 collates the time-stamped integrated data with a word dictionary stored 101301 in the hard disk 1013 and extracts locations in the integrated data with time stamp where the same term frequently occurs. (Para. [0063]). The present application also explains that the exercise problem creation program 101207 extracts text information from the student class learning material and the review problems and collates the extracted text information with the word dictionary. (Para. [0101]). Paragraph [0098] further explains that the using the collation results and locations where specified words appear frequently in the word dictionary and the extracted time stamps at those locations, the times (time span start time, time span end time) that the specified words frequently appear are established. A word name, appearance count, time span start time, time span end time are stored for each frequently appearing word in the data storage area in time span data word units.

In claims 4 and 23, the matcher section is also configured to store the extracted time information, the extracted video information, and the extracted audio information in a relationship collating to each other on a time axis in time-spans during each of which the specified words frequently appear in the text information extracted by the analyzer section. For example, the present invention explains that where the word name, appearance count, time span start time, time span end time are stored for each frequently appearing word in the data storage area in time span data word units, the exercise problem creation program 101207 compares the time span start time and time span end time for the time span data of multiple word units for where there is an overlap among the word unit time spans (time span start time and time span end time period) for the integrated data. When there is an overlap in the time the words occur, the

exercise problem creation program 101207 stores the word unit time span data names that overlap as flag data in a data storage area 101306. (Paras. [0093]-[0094]).

In each of claims 4, 21, and 23, the send section of the information management server operates to send the lecture contents and the lecture-related information to the student terminal connected to information management server. Examples of these operations are described at paragraphs [0051] and [0064] of the present application, with reference to Figures 2 and 6, as being performed by the data send/receive program 101202 of the information management server 101. The control section of the information management server is configured to, based on a reply sent from the student terminal to the lecture-related information from the send section, select lecture contents linked to the lecture-related information. For example, the present application explains that the student operating a student PC 103 solves the review problems that were sent from the information management server 101 and then sends these answers as reply data to the instructional information management server 101. A student grouping program 101209 of the instructional information management server 101, based on true-false judgments of the reply data sent from the student PC 103, then proceeds to send video frame data matching the problem numbers of review problems for which a wrong answer was provided to the student PC 103. (Para. [0065]-[0066]). These operations performed by the student grouping program 101209 are also further explained in greater detail in paragraphs [0110]-[0111] with reference to Figure 14.

In claims 4, 21, and 23, the control section is similarly further configured to, based on true-false judgment results of the replies sent from the student terminal to the problems included in lecture-related information from the send section, also select

supplemental learning contents to be sent to the student terminal. In such embodiments, the send section may also be configured to send the selected supplemental learning contents to the student terminal. For example, the present application explains that the exemplary information management server 101 performs the true-false judgment of the replies to the exercise problems and sends supplemental learning contents in response to wrong answers. (Para. [0074]). Paragraph [0076] further explains that “[s]upplemental contents are created from the class video data, voice data, and digital board data in...tutoring processing. Supplemental learning contents can be sent and a review made in response to results from true-false judgment of exercise problem replies from the student and wrong answers to problems.”

In claims 21 and 23, the control section is similarly further configured to extract sections of video frame data contained in the lecture contents selected for delivery to the student terminal based on the reply data from the student terminal and, within each time-span during which the specified words frequently appear in the extracted text information, and create supplemental learning contents based upon the extracted sections of video frame data to send to said student terminal. For example, the exemplary embodiment described in the present application with reference to Figure 14 provides that, upon performing the true-false processing of the reply data from the student terminal, the information management server 101 then “extracts a review problem number (No.) matching a wrong reply in the reply data from the students. The server 101 also extracts video frame data for the review problem with a matching review problem No., and links that video frame data to the review problem No....That video frame data linked to a review problem No. is then sent to the student PC 103 as

supplemental learning contents corresponding to wrong answers....Related information (for example, hints and advice) is merged with the video frame data for review problems to generate the exercise contents. These (contents) may be sent to the student PC 103. In this way, other related information can be simultaneously used for learning besides the video data extracted for supplemental learning and the student's learning efficiency can be improved." (Paras. [0111]-[0112]).

In some embodiments of the present invention, as similarly set forth in dependent claims 8, 22, and 24, the information management server can further comprise a grouping section for sorting students into groups based on replies to the lecture-related information. The grouping section operates to determine a tutoring start time by calculating an optimum time from desired tutoring times sent from the respective students included in the group, to extract a reply source terminal from each of the replies to the lecture-related information, and to sort the students into groups based on the inclusive relation of said source terminal. An example of such an embodiment is described in paragraphs [0113]-[0120] of the present application with reference to Figure 15.

Finally, in some embodiments of the present invention, as similarly set forth in dependent claims 20 and 25, the matcher section is also further configured to compare a time span start time and a time span end time of each of the time-spans of the extracted video information and the extracted audio information, find overlaps among the time spans, set an overlap flag for each overlap among the time-spans, store said overlap flag with the extracted video and audio information as overlap flag data, search within the overlap flag data for a hit word contained in an instructional material and

review problem contents, find overlap flag data containing the hit word, and create review problems based upon found overlap flag data containing the hit word. An example of such an embodiment is described in paragraphs [0092]-[0098] of the present application with reference to Figure 11.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Ground 1: The rejections of claims 4, 20, 21, 23, and 25 under 35 U.S.C. §103(a) as being unpatentable over Norcott (U.S. Patent No. 6,775,518) in view of Knutson (U.S. Patent No. 7,050,753), and in further view of Morton (U.S. Patent Application Pub. No. 2005/216443).

Ground 2: The rejections of claims 8, 22, and 24 under 35 U.S.C. §103(a) as being unpatentable over Norcott in view of Knutson, and in further view of Morton and Remschel (U.S. Patent No. 6,411,796).

VII. SUMMARY OF THE CITED PRIOR ART REFERENCES

A. Norcott

The teachings of Norcott relevant to this appeal are generally describe that “[a]n interactive educational system simultaneously provides educational materials to multiple users. The educational system tests and records each user’s demonstrated comprehension of the materials provided. The server-based system can provide

materials that are data, video data, or audio data.” (Abstract). Norcott explains that, in the educational system 10, “[t]he server 12 stores or accesses educational materials that may include digital computer records, programs, and/or applications, to a user located at a user terminal 64. A user thus accesses the server 12 by means of a user terminal 64, which communicates through at least one communications channel 14.” (Col. 2, ll. 45-50). Norcott further explains that “each of the multiple users may access the precise location for materials which the particular user desires to use or be presented. The server prompts each of the separate users to demonstrate their comprehension of the educational materials used by that user or student, and the server evaluates the correctness of each user’s responses and re-presents relevant portions of the educational materials to that user when that user fails to demonstrate adequate comprehension of the educational materials.” (Col. 2, ll. 3-11).

More particularly, Norcott describes that “[t]he storage 20 [of the server 12] includes a program memory 24, a content media storage 26, a content selection database 28, a user database 30, a test database 32, and a usage database 34.” (Col. 2, ll. 62-64). “The program memory 24 stores programs of educational materials, and accesses the content media storage 26 and content selection database 28 for data relevant to the programs of educational materials in program memory 24....The test database 32 provides testing materials at various points in a session to a user to reinforce the materials. The results of such testing are stored as identified with the user in the usage database 34....The usage database 34 recognizes and stores certain parameters and information regarding the access and use by users, including test responses.” (Col. 3, ll. 13-31).

Norcott further describes that, during operation of the educational system 10, “[t]he user is then prompted to select an option or make a content selection...by a content selection database 28....The content selection database 28 communicates to the user database 30 to insure that access is permitted to the desired content and to determine what selections are made available to the user for content selection 104. The materials are then accessed from the content media storage 26 database to communicate and present the content, as at content presentation 108; for user viewing. The server 12 provides the materials over the communications channel 14 to the appropriate terminal 64 or interface. The materials may be in the form of digital video or audio and present questions regarding the subject matter of the materials.” (Col. 5-6, ll. 65-14).

Norcott then explains that “[t]he system 10 then, in its preferred embodiment, proceeds to a retention assessment 110, or test. The focus of the interaction between the user and the materials provided by the server is that the user must demonstrate knowledge and understanding of the materials....The system 10 accesses and communicates with the test database 32, the test database 32 providing the questions to be presented and communicating with the user database 30 in order to tailor the questions for the specific user. The materials or program may present questions that require a short answer, true/false, or multiple-choice response. The response of the user to each question presented is evaluated, by a verification 112, and recorded by the usage database 34 (response/usage database). If the question was answered correctly, the retention assessment 110 provides the next question to be answered or the program may continue with providing instruction. If the question was answered

incorrectly, a presentation segment review 114 is activated, whereupon the content media storage 26 and content selection database 28 are prompted to represent the materials (content) that are relevant to the incorrectly answered question.” (Col. 6, ll. 22-45).

B. Morton

The teachings of Morton relevant to this appeal are generally directed to “a method and system for indexing and searching timed media based upon relevance intervals that returns portions of timed media files that are selected as specifically relevant to the given information representations, thereby eliminating the need for a manual determination of the relevance, replacing manual editing processes, and avoiding missing relevant portions. The timed media includes streaming audio, streaming video, timed HTML, animations such as vector-based graphics, slide shows, other timed media, and combinations thereof. The method and system of the present invention determines the relevant portion of the media around each occurrence of the information representation.” (Para. [0006]).

As will be described in greater detail below, Morton explains that the term ‘relevance interval,’ as used therein, “relevance interval as used herein means a continuous section of a timed media file, e.g. video or audio, that is deemed relevant to a particular information representation,” (para. [0060]), and that the term ‘information representation,’ as used therein, “denotes an indicator of material relevant to a concept, search term, or more complex query.” (Para. [0061]). Morton further explains that “[a]n information representation, therefore, can comprise any single item or combination of

particular definitions of particular words, parts of speech, words, phrases, sentences, grammatical structures, and linguistic objects. An information representation need not be a complete sentence. It is expected that an information representation would not be a single article, preposition or conjunction since such parts of speech, absent a connection to other parts of speech, do not convey meaning.... In the context of search and retrieval, query information representations comprise indicators of that which is sought in a query, and information representations within texts and timed media files indicate the presence of that which is relevant to the search and should be returned.” (Para. [0061]).

During operation of the system described in Morton, “[a] timed media file is entered into the system [and] data associated with the timed media file may be entered into the system. This data can include meta-data, such as the title or subject of the timed media file; descriptive information; categorization of the media file according to genre (e.g. news, presentation, instructional content), number of speakers, or expected use; text on subject matter closely related to the timed media file; HTML from a Web page that is associated with or that includes the timed media file; and other types of data....[T]he system then extracts data from the timed media file and the associated data. The extracted data can include spoken words, speech and sound events or parameters, on-screen text, meta-tag information, and other types of data. The extracted data is then analyzed...using natural language processing, conceptual reasoning, logical structure analysis, and other techniques. The results of the analysis are saved in a raw data index..., so that users can access the raw data for highly accurate multi-information representation queries and for the creation of customized or

updated search indices at a later date....[R]elevance intervals and their associated magnitudes of relevance are calculated for each information representation, and the relevance intervals and the corresponding magnitudes of relevance are stored in the search index.” (Paras. [0058]-[0059]). The “magnitudes of relevance” referenced here by Morton “provide a measured weight to the relevance of the virtual document or relevance interval.” (Para. [0083]).

As a result of these indexing operations, Morton explains that this allows the system to create and return search results to a user. More particularly, Morton describes that “the user inputs a search query....[A] determination is made as to whether the query includes more than one information representation. If the search included only one information representation, then the search index is queried for the relevance intervals associated with the single information representation..., and...the search results are displayed to the user.” (Para. [0062]). With reference to such a user-entered query, Morton explains that “[w]hen an input query 200 is received by the query engine 202, the query engine 202 parses the query 200 into discreet query information representations and directs query processes for each query information representation....Each of the query processes reviews the search index 120 and returns the results most relevant to each information representation 204 in the form of relevance intervals 205.” (Para. [0073]). Morton further describes that the results consist of “the virtual documents that are relevant to the query and the relevance intervals they comprise.” (Para. [0064]).

C. Knutson

The Knutson reference is generally directed to “[a] system and method provides content or material such as educational, informational, or learning content from existing and/or third party content on a network such as the Internet and disseminates the content via the network to a user by correlating the culled content to a user’s learning profile.” (Abstract). More particularly, Knutson explains that “[t]he user’s profile is stored as metadata regarding the user’s proclivities and/or preferences....The user’s profile includes, but is not limited to, a proclivities and/or preferences of learning of a user.” (Col. 4, ll. 28-32). Knutson further explains that “[t]he system searches the Internet such as via a spider and/or bot, usually with regard to a particular subject, subject area and/or topic, and catalogues and/or categorizes the content and/or the content attributes of particular web pages for possible presentation as learning material, depending on whether the categorized/catalogued content and/or content attributes correlate to the learning profile.” (Col. 4, ll. 10-16). Knutson also provides that “[t]he system preferably pushes the content to the user after correlation of content to the user’s learning profile.” (Abstract).

D. Remschel

The Remschel reference is generally directed to a learning system that includes “a plurality of student units for use by students, a teacher unit for use by a teacher, and a plurality of master storage devices that store information reproduced by the student units. The learning system includes a computer having a graphical user interface for

use also by the teacher that operates to control each of the student units. The graphical user interface allows the computer to control all functions of the learning system, including the easy coupling of student and class data to specific interface/input devices [and] the random assignment of students to various groups.” (Abstract). Remschel further provides that the learning system can include roster files so that the learning system “integrates individual student data into the education process by means of those roster files.” (Col. 2, ll. 30-33).

VII. ARGUMENT

A. Introduction

Claims 4, 20, 21, 23, and 25 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Norcott (U.S. Patent No. 6,775,518) in view of Knutson (U.S. Patent No. 7,050,753), and in further view of Morton (U.S. Patent Application Pub. No. 2005/216443). Claims 8, 22, and 24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Norcott in view of Knutson, and in further view of Morton and Remschel (U.S. Patent No. 6,411,796).

A proper obviousness rejection that relies on a combination of prior art elements requires establishing that the prior art references, when combined, teach or suggest all of the claim limitations. MPEP §2143. Furthermore, “[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970). That is, to render a claim obvious under 35 U.S.C. §103, a determination must be made that the claimed invention “as a whole”

would have been obvious to person of ordinary skill in the art when the invention was unknown and just before it was made. MPEP §2142.

Accordingly, Appellant respectfully submits that, as will be made clear from the following discussion, the appealed claims 4, 8, and 20-25 should be held to not be rendered obvious in view of the cited prior art references listed above and, therefore, held allowable. In particular, Appellant respectfully submits that Norcott, either alone or in combination with Knutson, Morton, and/or Remschel, fails to teach, suggest, or disclose each and every limitation of claims 4, 8, and 20-25.

B. Claims 4 and 20 are not rendered obvious under 35 U.S.C. §103(a) by the cited prior art references

1. None of the cited references teach or suggest “an analyzer section to analyze said lecture-related information and electronic data on said lecture contents,” “wherein the analyzer section is configured to extract text information from said lecture information,” and “wherein said analyzer section is configured to add time information relating to lecture contents to the extracted text information per sentence,” as required by independent claim 4

Appellants first note that Norcott fails to include any mention or suggestion of any analyzer section that performs any form of analysis of lecture-related information and electronic data on lecture contents. Rather, as noted above, Norcott merely describes that “[a]n interactive educational system simultaneously provides educational materials to multiple users. The educational system tests and records each user’s demonstrated comprehension of the materials provided. The server-based system can provide

materials that are data, video data, or audio data.” (Abstract). On page 2 of the Final Office Action, the Examiner cites the description in Norcott of test materials stored in a test database 32 that are provided to a user at various points in a system session to reinforce the educational materials being presented during the session. Norcott, however, fails to include any teaching or suggestion of analysis being performed on these testing materials.

In contrast to claim 4, Norcott simply explains that the system 10 administers a retention assessment 110, or test in which “[t]he focus of the interaction between the user and the materials provided by the server is that the user must demonstrate knowledge and understanding of the materials....The system 10 accesses and communicates with the test database 32, the test database 32 providing the questions to be presented and communicating with the user database 30 in order to tailor the questions for the specific user. The materials or program may present questions that require a short answer, true/false, or multiple-choice response. **The response of the user to each question presented is evaluated**, by a verification 112, and recorded by the usage database 34 (response/usage database). **If the question was answered correctly**, the retention assessment 110 provides the next question to be answered or the program may continue with providing instruction. **If the question was answered incorrectly**, a presentation segment review 114 is activated, whereupon the content media storage 26 and content selection database 28 are prompted to represent the materials (content) that are relevant to the incorrectly answered question.” (Col. 6, ll. 22-45) (emphasis added).

That is, the only analysis that is described as being performed in Norcott is of the user responses to the questions presented to the user. This is also noted by the statement by the Examiner on page 5 of the Final Office Action that Norcott discloses “an *analysis* of the questions that the student missed.” (Emphasis in original). An analysis of user responses to test questions, however, is very clearly not an analysis of lecture-related information and electronic data on lecture contents, as required by claim 4. The remainder of the operations performed by the system 10 described in Norcott are dependent directly on predetermined settings related to the educational materials and the testing materials. As Norcott explains in column 3, lines 29-31, “[t]he usage database 34 **recognizes and stores certain parameters and information regarding the access and use by users**, including test responses.” (Emphasis added). Norcott further explains that these settings and parameters would be entered by administrator of the system 10. (Col. 7, ll. 1-7).

On page 3 of the Final Office Action, the Examiner appears to cite the description in Norcott that “the content media storage 26 and content selection database 28 are prompted to represent the materials (content) that are relevant to the incorrectly answered question” as corresponding to an analysis of electronic data on lecture contents. As explained above, such an operation is based upon predetermined settings that provide relationships between test questions and relevant portions of the educational materials, as defined in the content selection database 28 and usage database 34 described in Norcott. As such, it is obvious that the operation to identify the content that is relevant to an incorrectly answered question in Norcott simply

involves a database look-up or query operation, not any analysis of analysis of lecture-related information and electronic data on lecture contents, as required by claim 4.

Moreover, as noted by the Examiner on page 3 of the Office Action, Norcott fails to include any teaching or suggestion of either any analyzer section being configured to extract text information from lecture information or any analyzer section being configured to add time information relating to lecture contents to the extracted text information per sentence, both of which are required by independent claim 4.

On pages 4-5 of the Final Office Action, the Examiner states that "Morton discloses a system for extracting searchable information from media files that includes" features "for extracting text information from audio or video information contained in said lecture contents" in paragraphs [0019], [0059], and [0197-98]. The Examiner, however, fails to provide an assertion of where the limitation required by claim 4 that an analyzer section is configured to extract text information from lecture-related information that includes plural problems related to the lecture contents is taught in any of the cited references. As a result of this failure to include a particular claim element in the analysis supporting the rejection under 35 U.S.C. §103(a) in a manner that is sufficient to establish a *prima facie* case in support of the rejection, Appellant respectfully submits that the rejection of claim 4 under 35 U.S.C. §103(a) is clearly improper and, thus, should be withdrawn.

Furthermore, in contrast to claim 4, Morton describes "a method and system for indexing and searching timed media based upon relevance intervals that returns portions of timed media files that are selected as specifically relevant to the given information representations....The method and system of the present invention

determines the relevant portion of the media around each occurrence of the information representation.” (Para. [0006]) (emphasis added). That is, Morton merely discloses a method and system for performing an analysis of timed media files, and fails to include any mention or suggestion of any analysis or extraction of text information from lecture-related information that includes problems related to lecture content, as required by claim 4.

More particularly, Morton describes that, during the process of indexing, searching, and retrieving timed media files described therein, “a raw data index is **developed from timed media files**” where “the raw data index includes information such as an information representation and the time-codes of the interval during which that information representation occurs in the file.” (Paras. [0027]-[0028]) (emphasis added). The information representations described in Morton as being developed from an analysis of the timed media files are clearly not lecture-related information as required by claim 4. Rather, as described above, such information representations are indexing terms that, “[i]n the context of search and retrieval,...comprise indicators of that which is sought in a query, and information representations within texts and timed media files indicate the presence of that which is relevant to the search and should be returned.” (Para. [0061]). In addition, Morton fails to include any mention or suggestion or any text being extracted from the information representations. Morton simply describes that an information representation is used as “an indicator of material relevant to a concept, search term, or more complex query” (para. [0061]) such that a search index can be queried for relevance intervals associated with the information representation. (Para. [0062]).

Moreover, while Morton describes that “data associated with the timed media file may be entered into the system” (para. [0058]) and that the system “extracts data from the timed media and the associated data” (para. [0059]), this associated data is not lecture-related information as required by claim 4. Rather, Morton explains that “[t]his data can include meta-data, such as the title or subject of the timed media file; descriptive information; categorization of the media file according to genre (e.g. news, presentation, instructional content), number of speakers, or expected use; text on subject matter closely related to the timed media file; HTML from a Web page that is associated with or that includes the timed media file; and other types of data.” (Paras [0058]-[0059]). None of this data corresponds to lecture-related information that includes plural problems relating to lecture contents, as required by claim 4. In addition, Morton explains that “extracted data can include spoken words, speech and sound events or parameters, on-screen text, meta-tag information, and other types of data.” (Para. [0059]). As Morton further details in paragraphs [0091]-[0094], none of this data corresponds to extracted text from lecture-related information that includes plural problems relating to lecture contents, as required by claim 4.

On page 4 of the Final Office Action, the Examiner states that, in Morton, “the searchable index constitutes information extracted from the media file.” As discussed above, however, information extracted from a media file does not meet limitation required by claim 4 of text information extracted from lecture-related information that includes plural problems related to the lecture contents. In addition, as also discussed above, the raw data index 114 described in Morton is not constituted by information that is directly extracted from the timed media file. Rather, Morton describes that the raw

data index 114 “includes data **generated by** some or all of the data extraction and analysis modules.” (Para. [0078]) (emphasis added). That is, the raw data described in Morton is generated information, not extracted information. As Morton further explains, “[t]he raw data includes **each information representation** that is located within the timed media file, the time-code location of **the occurrence of each information representation, groupings of such information representations** (either sentences or visual objects), and logical or grammatical **relationships between information representations** and information representation groupings.” (Para. [0078]). As explained throughout Morton, an information representation, rather than being constituted by extracted text information, is an object that is generated to be used “an indicator of material relevant to a concept, search term, or more complex query.” (Para. [0061]). Thus, it is clear that Morton fails to include any teaching or suggestion of “an analyzer section to analyze said lecture-related information and electronic data on said lecture contents,...wherein the analyzer section is configured to extract text information from said lecture information” as required by claim 4.

Moreover, Morton also fails to include any teaching or suggestion that “said analyzer section is configured to add time information relating to lecture contents **to the extracted text information per sentence**” as further required by claim 4. On page 4 of the Final Office Action, the Examiner states that Morton “teaches in paragraph 0028 the concept of time stamping the relevant returned media intervals.” Time-stamping intervals of a timed media file, however, is very clearly not adding time information to any extracted text information, as specifically required by claim 4. In fact, the Final Office Action fails to provide any assertion of where the limitation required by claim 4

that “said analyzer section is configured to add time information relating to lecture contents to the extracted text information per sentence” is taught in the cited references. As a result of this failure to include a particular claim element in the analysis supporting the rejection under 35 U.S.C. §103(a) in a manner that is sufficient to establish a *prima facie* case in support of the rejection, Appellant respectfully submits that the rejection of claim 4 under 35 U.S.C. §103(a) is clearly improper and, thus, should be withdrawn.

Furthermore, in contrast to claim 4, Morton explains that “[t]he raw data includes each information representation that is located within the timed media file, **the time-code location of the occurrence of each information representation**, groupings of such information representations (either sentences or visual objects), and logical or grammatical relationships between information representations and information representation groupings.” (Para. [0078]) (emphasis added). As explained above, an information representation as described in Morton is not extracted text information; rather, it is an indexing term that is generated based on an analysis of a timed media file. Thus, identifying a time-code location of an information representation, as provided in Morton, is clearly not adding time information to any extracted text information, as required by claim 4.

While the Examiner states on page 4 of the Final Office Action that Morton “discloses in paragraph [0078] that the intervals can be grouped by specific sentences or visual objects,” the raw data referenced here by Morton is described as being in relation to groups of information representations, not groupings of intervals or sentences. As Morton explicitly explains in paragraph [0079], “the raw data index 114 includes data such as **the time-code at which the information representation**

occurs in the file.” (Para. [0079]) (emphasis added). While Morton further describes that, “[f]or sentences, the raw data index 114 includes data such as the sentence number and the time-code at which the sentence occurs in the file” (para. [0080]), it is again noted that this time-code is added to entry in the raw data index for an information representation, not for the sentence. That is, Morton simply describes adding time-codes and sentence numbers to an index of information representations Morton does not include any mention or suggestion or any time information being added to extracted text information. Adding time-codes to an index of information representations describing sentences where the information representations occur in a timed media file, as described in Morton, is very clearly not adding time information relating to lecture contents to the extracted text information per sentence, as required by claim 4.

Moreover, neither Knutson nor Remschel includes any mention or suggestion of any analyzer section that analyzes lecture-related information and electronic data on lecture contents, extracts text information from the lecture information, and adds time information relating to lecture contents to the extracted text information per sentence.

Accordingly, Appellant respectfully submits that Norcott, either alone or in combination with Knutson, Morton, and/or Remschel, fails to teach, suggest, or disclose “an analyzer section to analyze said lecture-related information and electronic data on said lecture contents,” “wherein the analyzer section is configured to extract text information from said lecture information,” and “wherein said analyzer section is configured to add time information relating to lecture contents to the extracted text information per sentence,” as required by independent claim 4. For this reason alone, claim 4 is patentable over the cited references.

2. None of the cited references teach or suggest “a matcher section to link said lecture-related information with said lecture contents based on said analysis results” as required by independent claim 4

On page 3 of the Final Office Action, the Examiner states that Norcott “discloses a matching section for matching relevant portions of the lecture content with the lecture related information and supplying this remedial content to the student **based on their replies to the lecture related information.**” (Emphasis added). Claim 1, however, specifically requires a matcher section that links lecture-related information with lecture contents **based on the results of an analysis of the lecture-related information and electronic data on the lecture contents.** An analysis of user-submitted replies to test questions is clearly not an analysis of the lecture-related information and electronic data on lecture contents, as required by claim 4. In fact, the Final Office Action fails to provide any assertion of where the specific limitation required by claim 4 of “a matcher section to link said lecture-related information with said lecture contents based on said analysis results” is taught in the cited references. As a result of this failure to include a particular claim element in the analysis supporting the rejection under 35 U.S.C. §103(a) in a manner that is sufficient to establish a *prima facie* case in support of the rejection, Appellant respectfully submits that the rejection of claim 4 under 35 U.S.C. §103(a) is clearly improper and, thus, should be withdrawn.

Furthermore, in contrast to claim 4, Norcott simply describes that, during certain aspects of a retention assessment or test, “a presentation segment review 114 is activated, whereupon the content media storage 26 and content selection database 28

are prompted to represent the materials (content) that are relevant to the incorrectly answered question.” (Col. 6, ll. 40-45). That is, Norcott teaches that educational materials are accessed through a content media storage 26 and content selection database 28 that provide predetermined associations between the educational materials and the testing materials so that a look-up or query operation can be performed to return related educational materials in response to the specification of particular testing materials. Performing a look-up operation in a database that provides predetermined associations between educational materials and testing materials, where the testing materials are specified for the look-up operation based on an analysis of user-submitted replies to test questions, as described in Norcott, is clearly not linking lecture-related information with lecture contents based on the results of an analysis of the lecture-related information and electronic data on the lecture contents, as required by claim 4.

Likewise, Remschel fails to include any mention or suggestion of any “matcher section to link said lecture-related information with said lecture contents based on said analysis results” as required by claim 4, and Knutson simply describes a system that performs an Internet search “with regard to a particular subject, subject area and/or topic, and catalogues and/or categorizes the content and/or the content attributes of particular web pages for possible presentation as learning material, depending on whether the categorized/catalogued content and/or content attributes correlate to...the various learning proclivities and/or particular learning preferences that may make up a user’s learning profile.” (Col. 4, ll. 10-26). Regardless of whether the assertion by the Examiner on page 3 of the Final Office Action that Knutson discloses that “keywords are used for searching for educational material” is correct, a system that merely performs an

Internet search for content that has an existing relationship to a particular subject and categorizes the returned content based on a correspondence between the content and a learning profile, as described in Knutson, is clearly not a matcher section that is implemented to actually link lecture-related information with lecture contents based on results of analyzing the lecture-related information and the lecture contents, as required by claim 4.

Furthermore, Morton merely describes a “system for indexing, searching, and retrieving information from timed media files [that]...is based upon relevance intervals so that **a portion of a timed media file is returned, which is selected specifically to be relevant to the given information representations.**” (Abstract) (emphasis added). Morton further explains that relevance intervals are “portions of timed media files” (para. [0024]) and that an information representations is an indexing object that is generated to be used as “an indicator of material relevant to a concept, search term, or more complex query” (para. [0061]) such that a search index can be queried for relevance intervals associated with the information representation. (Para. [0062]). That is, Morton simply explains that a system performs an indexing operation on an individual timed media file to generate an index of information representations associated with corresponding portions of the timed media file so that the corresponding portions can be returned in response to an inputted user search query for which a generated information representation is deemed relevant. Morton does not describe any form of matching section that links lecture contents to lecture-related information based on an analysis of electronic data on the lecture contents and the lecture-related information being linked, as required by claim 4.

On page 4 of the Final Office Action, the Examiner asserts that paragraphs [0197]-[0198] of Morton describes that “search terms are extracted from the audio and video, and the time segments of the spoken sentences and also the video with the relevant terms are collated on a time axis.” Appellants respectfully disagree. As explained above, the search terms or information representations described in Morton are indexing objects that are generated based upon an analysis of a timed media file and, therefore, do not constitute any extracted text information. Moreover, paragraph [0197] of Morton actually describes operations of a relevance interval calculation module 116 that are performed “**for each unique information representation** that has been identified within the media file. These steps operate for a given information representation (called the ‘indexing term’) as follows: in the first step,... **the module locates every occurrence of the indexing term within the media file by time-code.** For spoken occurrences of the indexing term, the list of occurrences includes the time interval of the sentence that includes the spoken occurrence. For visual occurrences of the indexing term, the list of occurrences includes the intervals of time that have been associated with the visual occurrence by the temporal logical structure analysis module 112.” (Emphasis added). An occurrence of indexing term within a media file, as described in Morton, does not refer to the indexing term being included within any text extracted from the media file. Rather, Morton clearly explains that such an occurrence of indexing term refers to a portion of the media file that is relevant to the indexing term. As Morton explicitly provides in paragraph [0068], “[t]he relevance of each information representation identified by the extraction modules to the content

surrounding each said information representation is then calculated by the
centrality calculation module 100.” (Emphasis added).

On page 6 of the Final Office Action, the Examiner states that “Morton is not relied upon in any way to disclose the origination of the keyword, but merely for searching timed media files for intervals containing the keywords.” As explained above, however, the information representations described in Morton are very clearly not keywords, as asserted here by the Examiner. Rather, the term ‘information representation,’ as used in Morton, “denotes an indicator of material relevant to a concept, search term, or more complex query.” (Para. [0061]). Morton also explains that “[a]n information representation, therefore, can comprise any single item or combination of particular definitions of particular words, parts of speech, words, phrases, sentences, grammatical structures, and linguistic objects. An information representation need not be a complete sentence. **It is expected that an information representation would not be a single article, preposition or conjunction since such parts of speech, absent a connection to other parts of speech, do not convey meaning**.... In the context of search and retrieval, query information representations comprise indicators of that which is sought in a query, and information representations within texts and timed media files indicate the presence of that which is relevant to the search and should be returned.” (Para. [0061]) (emphasis added).

With regard to the particular indexing and searching operations disclosed therein, Morton explains that the system “extracts data from the timed media file and the associated data [that is associated with the timed media file]....The extracted data is then analyzed in step 24 using natural language processing, conceptual reasoning,

logical structure analysis, and other techniques. **The results of the analysis are saved in a raw data index in step 26, so that users can access the raw data for highly accurate multi-information representation queries and for the creation of customized or updated search indices at a later date....**In step 28, **relevance intervals and their associated magnitudes of relevance are calculated for each information representation**, and the relevance intervals and the corresponding magnitudes of relevance are stored in the search index in step 30.” (Para. [0059]) (emphasis added). Morton does not include any mention or suggestion of any operations of linking the timed media files to any lecture-related information based on an analysis of the timed media files and the lecture-related information. A system that analyzes a timed media file to generate an index of information representations that are relevant to portions of the timed media file, as described Morton, is clearly not a matcher section that operates to link lecture-related information with lecture contents based on results of analyzing the lecture-related information and the lecture contents, as required by claim 4.

Accordingly, Norcott, either alone or in combination with Knutson, Morton, and/or Remschel, fails to teach, suggest, or disclose “a matcher section to link said lecture-related information with said lecture contents based on said analysis results” as required by claim 4. For this reason alone, claim 4 is patentable over the cited references.

3. None of the cited references teach or suggest that “said matcher section is configured to...extract time information on word locations

where specified words frequently appear in said extracted text information, extract said video information corresponding to said specified words in each sentence with said time information, [and] extract said audio information corresponding to said specified words in each sentence with said time information” as required by independent claim 4

As noted by the Examiner on page 3 of the Final Office Action, Norcott fails to include any mention or suggestion of this required limitation of claim 4. Likewise, neither Knutson nor Remschel includes any mention or suggestion of this required limitation of claim 4. On pages 4 and 6 of the Final Office Action, The Examiner appears to assert that Morton discloses this limitation in paragraphs [0059], [0078], [0189]-[0190], and [0197]-[0198]. For example, on page 4 of the Final Office Action, the Examiner states that paragraphs [0197]-[0198] of Morton describes that “search terms are extracted from the audio and video, and the time segments of the spoken sentences and also the video with the relevant terms are collated on a time axis...in the sense that overlapping and adjacent intervals are joined.” The Examiner further states that “the entire purpose of the system of Morton” is “to extract time information where words frequently appear.” (Final Office Action, p. 6).

Nevertheless, the Final Office Action does not include any assertion of where the cited references teach or suggest a matcher section that is configured to extract both video information and audio information corresponding to specified words in each sentence with time information that extracted for locations where the specified words frequently appear in extracted text information, as specifically required by claim 4. As a result of this failure to include a particular claim element in the analysis supporting the

rejection under 35 U.S.C. §103(a) in a manner that is sufficient to establish a *prima facie* case in support of the rejection, Appellant respectfully submits that the rejection of claim 4 under 35 U.S.C. §103(a) is clearly improper and, thus, should be withdrawn.

Moreover, as explained above, the search terms or information representations described in Morton are indexing objects that are generated based upon an analysis of a timed media file and, therefore, are not actually specific words that appear in extracted text information. Moreover, as also explained above, paragraph [0197] of Morton describes that the operations of a relevance interval calculation module 116 are performed “**for each unique information representation** that has been identified within the media file. These steps operate for a given information representation (called the ‘indexing term’) as follows: in the first step,...**the module locates every occurrence of the indexing term within the media file by time-code.** For spoken occurrences of the indexing term, the list of occurrences includes the time interval of the sentence that includes the spoken occurrence. For visual occurrences of the indexing term, the list of occurrences includes the intervals of time that have been associated with the visual occurrence by the temporal logical structure analysis module 112.” (Emphasis added). An occurrence of indexing term within a media file, as described in Morton, does not refer to the indexing term being included within any text extracted from the media file. Rather, Morton clearly explains that such an occurrence of indexing term refers to a portion of the media file that is relevant to the indexing term. As Morton explicitly provides in paragraph [0068], “[t]he relevance of each information representation identified by the extraction modules to the content surrounding

each said information representation is then calculated by the centrality calculation module 100.” (Emphasis added).

That is, Morton contrastingly describes a system that analyzes a timed media file to generate an index of information representations that are relevant to portions of the timed media file such as sentences or visual objects. A system that identifies time information on where content that is relevant to an indexing term appears in a timed media file and returns the relevant portion of the timed media file based on the identified time information, as described in Morton, is clearly not a matcher section that is configured to extract time information on word locations where specified words frequently appear in extracted text information and to extract both video information and audio information corresponding to specified words in each sentence with time information that extracted for locations where the specified words frequently appear in extracted text information, as specifically required by claim 4.

Accordingly, Norcott, either alone or in combination with Knutson, Morton, and/or Remschel, fails to teach, suggest, or disclose that “said matcher section is configured to...extract time information on word locations where specified words frequently appear in said extracted text information, extract said video information corresponding to said specified words in each sentence with said time information, [and] extract said audio information corresponding to said specified words in each sentence with said time information” as required by claim 4. For this reason alone, claim 4 is patentable over the cited references.

4. None of the cited references teach or suggest that “said matcher section is configured to...store said extracted time information, said extracted video information and said extracted audio information in a relationship collating to each other on a time axis in time-spans during each of which the specified words frequently appear in said extracted text information” as required by independent claim 4

As noted by the Examiner on page 3 of the Final Office Action, Norcott fails to include any mention or suggestion of this required limitation of claim 4. Likewise, neither Knutson nor Remschel includes any mention or suggestion of this required limitation of claim 4. Furthermore, as explained above, Morton fails to include any mention or suggestion of any time-spans during each of which specified words frequently appear in extracted text information, as required by claim 4.

Accordingly, Norcott, either alone or in combination with Knutson, Morton, and/or Remschel, fails to teach, suggest, or disclose that “said matcher section is configured to...store said extracted time information, said extracted video information and said extracted audio information in a relationship collating to each other on a time axis in time-spans during each of which the specified words frequently appear in said extracted text information” as required by claim 4. For this reason alone, claim 4 is patentable over the cited references.

5. None of the cited references teach or suggest that “said matcher section compares a time span start time and a time span end time of each of said time-spans of said extracted video information and said extracted audio information, finds overlaps among said time spans, sets an overlap flag for each overlap among said time-spans, stores

said overlap flag with said extracted video and audio information as overlap flag data, searches within said overlap flag data for a hit word contained in an instructional material and review problem contents, finds overlap flag data containing the hit word, and creates review problems based upon found overlap flag data containing the hit word” as required by dependent claim 20

Initially, Appellant notes that where an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 5 U.P.S.Q.2d 1596, 1598 (Fed. Cir. 1988). Thus, because claim 20 depends directly from claim 4, Applicants respectfully submit that Norcott, either alone or in combination with Knutson, Morton, and/or Remschel, does not render obvious claim 20 for at least the reasons set forth above that it does not render obvious claim 4.

In addition, each of the Norcott, Knutson, and Remschel references fails to include any mention or suggestion of any of these required limitations of claim 20. On page 4 of the Final Office Action, the Examiner asserts that paragraphs [0197-98] of Morton describes that “search terms are extracted from the audio and video, and the time segments of the spoken sentences and also the video with the relevant terms are collated on a time axis.” The Examiner further asserts that “the terms are collated in the sense that overlapping and adjacent intervals are joined, and the intervals refer to both the audio and visual recognition of the key term.” (Final Office Action, p. 4).

Regardless of the these assertions, the Final Office Action fails to include any assertion of where the cited references teach or suggest that a matcher section sets an overlap flag for each overlap among time-spans of extracted audio and video information, stores the overlap flag with the extracted video and audio information as

overlap flag data, searches within the overlap flag data for a hit word contained in an instructional material and review problem contents, finds overlap flag data containing the hit word, and creates review problems based upon found overlap flag data containing the hit word, as specifically required by claim 20. As a result of this failure to include a particular claim element in the analysis supporting the rejection under 35 U.S.C. §103(a) in a manner that is sufficient to establish a *prima facie* case in support of the rejection, Appellant respectfully submits that the rejection of claim 20 under 35 U.S.C. §103(a) is clearly improper and, thus, should be withdrawn.

Furthermore, Morton also fails includes any mention or suggestion of this required limitation of claim 20. For this reason alone, claim 20 is patentable over the cited references.

C. Claim 21 is not rendered obvious under 35 U.S.C. §103(a) by the cited prior art references

For at least similar reasons to those discussed above with reference to claim 4, Appellant respectfully submits that Norcott, either alone or in combination with Knutson, Morton, and/or Remschel, fails to teach, disclose, or suggest any of the following similar limitations required by independent claim 21: “an analyzer section to analyze said lecture-related information and electronic data on said lecture contents,” “wherein the analyzer section is configured to extract text information from said lecture information,” and “wherein said analyzer section is configured to add time information relating to lecture contents to the extracted text information per sentence”; “a matcher section to link said lecture-related information with said lecture contents based on said analysis

results”; and that “said matcher section is configured to...extract time information on word locations where specified words frequently appear in said extracted text information extract said video information corresponding to said specified words in each sentence with said time information, and extract said audio information corresponding to said specified words in each sentence with said time information.” For any of these reasons alone, claim 21 is patentable over the cited references.

Furthermore, none of the cited references include any teaching or suggestion that “said control section is configured to extract sections of video frame data contained in said selected lecture contents and **within time-spans during each of which the specified words frequently appear** in said extracted text information, and **create supplemental learning contents** based upon said sections of video frame data to send to said student terminal” as required by claim 21. For this reason alone, claim 21 is patentable over the cited references.

In addition, the Final Office Action fails to include any assertion of where the cited references teach or suggest that a control section is configured to extract sections of video frame data within time-spans during each of which specified words frequently appear in extracted text information and to create supplemental learning contents based upon the extracted sections of video frame data within the time-spans, as specifically required by claim 21. As a result of this failure to include a particular claim element in the analysis supporting the rejection under 35 U.S.C. §103(a) in a manner that is sufficient to establish a *prima facie* case in support of the rejection, Appellant respectfully submits that the rejection of claim 21 under 35 U.S.C. §103(a) is clearly improper and, thus, should be withdrawn.

D. Claims 23 and 25 are not rendered obvious under 35 U.S.C. §103(a) by the cited prior art references

For at least similar reasons to those discussed above with reference to claim 4, Appellant respectfully submits that Norcott, either alone or in combination with Knutson, Morton, and/or Remschel, fails to teach, disclose, or suggest any of the following similar limitations required by independent claim 23: “an analyzer section to analyze said lecture-related information and electronic data on said lecture contents,” “wherein the analyzer section is configured to extract text information from said lecture information,” and “wherein said analyzer section is configured to add time information relating to lecture contents to the extracted text information per sentence”; “a matcher section to link said lecture-related information with said lecture contents based on said analysis results”; that “said matcher section is configured to...extract time information on word locations where specified words frequently appear in said extracted text information extract said video information corresponding to said specified words in each sentence with said time information, and extract said audio information corresponding to said specified words in each sentence with said time information; and that “said matcher section is configured to...store said extracted time information, said extracted video information and said extracted audio information in a relationship collating to each other on a time axis in time-spans during each of which the specified words frequently appear in said extracted text information.” For any of these reasons alone, claim 23 is patentable over the cited references.

Furthermore, none of the cited references include any teaching or suggestion that "said control section is configured to extract sections of video frame data contained in said selected lecture contents and **within time-spans during each of which the specified words frequently appear** in said extracted text information, and **create supplemental learning contents** based upon said sections of video frame data to send to said student terminal" as required by claim 23. For this reason alone, claim 23 is patentable over the cited references.

In addition, the Final Office Action fails to include any assertion of where the cited references teach or suggest that a control section is configured to extract sections of video frame data within time-spans during each of which specified words frequently appear in extracted text information and to create supplemental learning contents based upon the extracted sections of video frame data within the time-spans, as specifically required by claim 23. As a result of this failure to include a particular claim element in the analysis supporting the rejection under 35 U.S.C. §103(a) in a manner that is sufficient to establish a *prima facie* case in support of the rejection, Appellant respectfully submits that the rejection of claim 23 under 35 U.S.C. §103(a) is clearly improper and, thus, should be withdrawn.

With reference to dependent claim 25, Appellants note that where an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 5 U.P.S.Q.2d 1596, 1598 (Fed. Cir. 1988). Thus, because claim 25 depends directly from claim 23, Applicants respectfully submit that Norcott, either alone or in combination with Knutson, Morton, and/or Remschel, does

not render obvious claim 25 for at least the reasons set forth above that it does not render obvious claim 23.

Moreover, none of the cited references teach or suggest that “said matcher section compares a time span start time and a time span end time of each of said time-spans of said extracted video information and said extracted audio information, finds overlaps among said time spans, sets an overlap flag for each overlap among said time-spans, stores said overlap flag with said extracted video and audio information as overlap flag data, searches within said overlap flag data for a hit word contained in an instructional material and review problem contents, finds overlap flag data containing the hit word, and creates review problems based upon found overlap flag data containing the hit word” as required by claim 25. Each of the Norcott, Knutson, and Remschel references fails to include any mention or suggestion of any of these required limitations of claim 25. On page 4 of the Final Office Action, the Examiner asserts that paragraphs [0197]-[0198] of Morton describes that “search terms are extracted from the audio and video, and the time segments of the spoken sentences and also the video with the relevant terms are collated on a time axis.” The Examiner further asserts that “the terms are collated in the sense that overlapping and adjacent intervals are joined, and the intervals refer to both the audio and visual recognition of the key term.” (Final Office Action, p. 4).

Regardless of the these assertions, the Final Office Action fails to include any assertion of where the cited references teach or suggest that a matcher section sets an overlap flag for each overlap among time-spans of extracted audio and video information, stores the overlap flag with the extracted video and audio information as

overlap flag data, searches within the overlap flag data for a hit word contained in an instructional material and review problem contents, finds overlap flag data containing the hit word, and creates review problems based upon found overlap flag data containing the hit word, as specifically required by claim 25.

As a result of this failure to include a particular claim element in the analysis supporting the rejection under 35 U.S.C. §103(a) in a manner that is sufficient to establish a *prima facie* case in support of the rejection, Appellant respectfully submits that the rejection of claim 25 under 35 U.S.C. §103(a) is clearly improper and, thus, should be withdrawn. Furthermore, Morton also fails includes any mention or suggestion of this required limitation of claim 25. For this reason alone, claim 25 is patentable over the cited references.

E. Claims 8, 22, and 24 are not rendered obvious under 35 U.S.C. §103(a) by the cited prior art references

1. None of the cited references teach or suggest that “said grouping section determines a tutoring start time by calculating an optimum time from desired tutoring times sent from the respective students included in the group” as similarly required by each of dependent claims 8, 22, and 24

Initially, Appellants note that where an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 5 U.P.S.Q.2d 1596, 1598 (Fed. Cir. 1988). Thus, because claims 8, 22, and 24 depend directly from claims 4, 21, and 23 respectively, Applicants respectfully submit that Norcott, either alone or in combination with Knutson, Morton, and/or Remschel, does

not render obvious claims 8, 22, and 24 for at least the reasons set forth above that it does not render obvious claims 4, 21, and 23 respectively.

In addition, as noted by the Examiner on page 5 of the Final Office Action, both Norcott and Morton fail to include any mention or suggestion of this limitation as similarly recited in claims 8, 22, and 24. Likewise, Knutson also fails includes any mention or suggestion of this limitation as similarly recited in claims 8, 22, and 24. The Examiner asserts that Remschel "discloses a CBT which sorts students into groups to receive information based on success pertaining to previous assignments." (Final Office Action, p. 5). The Final Office Action, however, does not include any assertion of where the cited references teach or suggest a grouping section determines a tutoring start time by calculating an optimum time from desired tutoring times sent from respective students included in the group, as specifically required by each of this limitation as similarly recited in claims 8, 22, and 24.

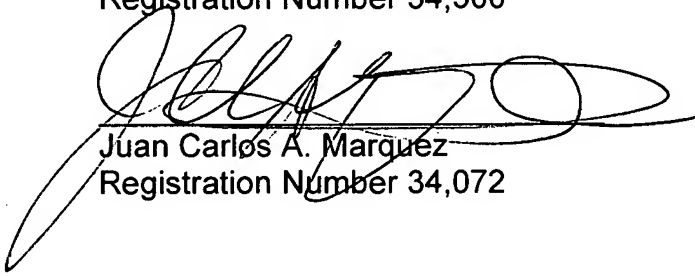
As a result of this failure to include a particular claim element in the analysis supporting the rejections of each of claims 8, 22, and 24 under 35 U.S.C. §103(a) in a manner that is sufficient to establish a *prima facie* case in support of the rejections, Appellant respectively submits that the rejections of claims 8, 22, and 24 under 35 U.S.C. §103(a) are clearly improper and, thus, should be withdrawn. Furthermore, Remschel also fails includes any mention or suggestion of this limitation as similarly recited in claims 8, 22, and 24. For this reason alone, claims 8, 22, and 24 is patentable over the cited references.

F. Conclusion

For the foregoing reasons, it is respectfully submitted that the appealed claims 4, 8, and 20-25 all set forth a patentable invention with respect to the cited references. Therefore, the rejections issued by the Examiner in the Final Office Action dated July, 20, 2010 should be **REVERSED** with respect to each of these claims.

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IX. CLAIMS APPENDIX – CLAIMS 4, 8, AND 20-25 ON APPEAL

1-3. (Canceled).

4. (Rejected) An information management server to be connected to the student terminal for distributing lecture course contents to a student terminal, comprising:

an accumulator section to accumulate electronic data on said lecture contents;

a holding section to hold lecture-related information including plural problems relating to the lecture contents;

a send section to send said lecture contents and said lecture-related information to said student terminal;

an analyzer section to analyze said lecture-related information and electronic data on said lecture contents;

a matcher section to link said lecture-related information with said lecture contents based on said analysis results; and

a control section for selecting lecture contents linked to said lecture related information based on a reply to said lecture-related contents sent from said student terminal,

wherein said send section sends said lecture-related information to the student terminal,

wherein the analyzer section is configured to extract text information from said lecture information, extract text information from video information contained

in said lecture contents, and extract text information from audio information contained in said lecture contents,

wherein said matcher section links said video information with said lecture-related information based on results from comparing with said extracted text information,

wherein said analyzer section is configured to add time information relating to lecture contents to the extracted text information per sentence,

wherein said matcher section is configured to extract words from said extracted text information, extract time information on word locations where specified words frequently appear in said extracted text information, extract said video information corresponding to said specified words in each sentence with said time information, extract said audio information corresponding to said specified words in each sentence with said time information, and store said extracted time information, said extracted video information and said extracted audio information in a relationship collating to each other on a time axis in time-spans during each of which the specified words frequently appear in said extracted text information,

wherein said control section is configured to select supplemental learning contents to be sent among lecture contents linked with each of said problems included in said lecture related information based on true-false judgment results of replies to each of said problems included in said lecture related information sent from said student terminal, and

wherein said send section is configured to send said selected supplemental learning contents to the student terminal which sends said replies to each of said problems.

5-7. (Canceled).

8. (Rejected) An information management server according to claim 4, further comprising a grouping section for sorting students into groups based on replies to said lecture-related contents,

wherein said grouping section determines a tutoring start time by calculating an optimum time from desired tutoring times sent from the respective students included in the group,

said grouping section extracts a reply source terminal from each of the replies to said lecture-related contents, and sorts said students into groups based on a relation of said source terminal to said students as determined by the determining and extracting functions of said grouping section.

9-19. (Canceled).

20. (Rejected) An information management server according to claim 4, wherein said matcher section compares a time span start time and a time span end time of each of said time-spans of said extracted video information and said extracted audio information, finds overlaps among said time spans, sets an overlap flag for each overlap among said time-spans, stores said overlap flag with said extracted video and audio information as overlap flag data, searches within said overlap

flag data for a hit word contained in an instructional material and review problem contents, finds overlap flag data containing the hit word, and creates review problems based upon found overlap flag data containing the hit word.

21. (Rejected) An information management server to be connected to the student terminal for distributing lecture course contents to a student terminal, comprising:

an accumulator section to accumulate electronic data on said lecture contents;

a holding section to hold lecture-related information including plural problems relating to the lecture contents;

a send section to send said lecture contents and said lecture-related information to said student terminal;

an analyzer section to analyze said lecture-related information and electronic data on said lecture contents;

a matcher section to link said lecture-related information with said lecture contents based on said analysis results; and

a control section for selecting lecture contents linked to said lecture related information based on a reply to said lecture-related contents sent from said student terminal,

wherein said send section is configured to send said lecture-related information to the student terminals,

wherein the analyzer section is configured to extract text information from said lecture-related information, extract text information from video information

contained in said lecture contents, and extract text information from audio information contained in said lecture contents,

wherein said matcher section links said video information with said lecture-related information based on results from comparing with said extracted text information,

wherein said analyzer is configured to add time information relating to lecture contents to the extracted text information per sentence,

wherein said matcher section is configured to extract words from said extracted text information, extract time information on word locations where specified words frequently appear in said extracted text information, extract said video information corresponding to said specified words in each sentence with said time information, and extract said audio information corresponding to said specified words in each sentence with said time information,

wherein said control section selects lecture contents to be sent among lecture contents linked with each of said problems included in said lecture-related information based on true-false judgment results of replies to each of said problems included in said lecture-related information sent from said student terminal, and

wherein said control section is configured to extract sections of video frame data contained in said selected lecture contents and within time-spans during each of which the specified words frequently appear in said extracted text information, and create supplemental learning contents based upon said sections of video frame data to send to said student terminal.

22. (Rejected) An information management server according to claim 21, further comprising a grouping section for sorting students into groups based on replies to said lecture-related contents,

wherein said grouping section determines a tutoring start time by calculating an optimum time from desired tutoring times sent from the respective students included in the group,

said grouping section extracts a reply source terminal from each of the replies to said lecture-related contents, and sorts said students into groups based on the inclusive relation of said source terminal.

23. (Rejected) An information management server to be connected to the student terminal for distributing lecture course contents to a student terminal, comprising:

an accumulator section to accumulate electronic data on said lecture contents;

a holding section to hold lecture-related information including plural problems relating to the lecture contents;

a send section to send said lecture contents and said lecture-related information to said student terminal;

an analyzer section to analyze said lecture-related information and electronic data on said lecture contents;

a matcher section to link said lecture-related information with said lecture contents based on said analysis results; and

a control section for selecting lecture contents linked to said lecture related information based on a reply to said lecture-related contents sent from said student terminal,

wherein the analyzer section is configured to extract text information from said lecture-related information, extract text information from video information contained in said lecture contents, and extract text information from audio information contained in said lecture contents,

wherein said matcher section is configured to link said video information with said lecture-related information based on results from comparing with said extracted text information,

wherein said analyzer section is configured to add time information relating to lecture contents to the extracted text information per sentence,

wherein said matcher section is configured to extract words from said extracted text information, extract time information on word locations where specified words frequently appear in said extracted text information, extract said video information corresponding to said specified words in each sentence with said time information, extract said audio information corresponding to said specified words in each sentence with said time information, and store said extracted time information, said extracted video information and said extracted audio information in a relationship collating to each other on a time axis in time-spans during each of which the specified words frequently appear in said extracted text information,

wherein said control section is configured to select supplemental learning contents to be sent among lecture contents linked with each of said problems included in said practice problems based on true-false judgment results of replies to each of said in said practice problems sent from said student terminal, and

wherein said control section is configured to extract sections of video frame data contained in said selected lecture contents and within time-spans during each of which the specified words frequently appear in said extracted text information, and create supplemental learning contents based upon said sections of video frame data to send to said student terminal.

24. (Rejected) An information management server according to claim 23, further comprising a grouping section for sorting students into groups based on replies to said lecture-related contents,

wherein said grouping section determines a tutoring start time by calculating an optimum time from desired tutoring times sent from the respective students included in the group,

said grouping section extracts a reply source terminal from each of the replies to said lecture-related contents, and sorts said students into groups based on a relation of said source terminal to said students as determined by the determining and extracting functions of said grouping section.

25. (Rejected) An information management server according to claim 23, wherein said matcher section compares a time span start time and a time span end time of each of said time-spans of said extracted video information and said extracted

audio information, finds overlaps among said time spans, sets an overlap flag for each overlap among said time-spans, stores said overlap flag with said extracted video and audio information as overlap flag data, searches within said overlap flag data for a hit word contained in an instructional material and review problem contents, finds overlap flag data containing the hit word, and creates review problems based upon found overlap flag data containing the hit word.

X. EVIDENCE APPENDIX

None.

XI. RELATED PROCEEDINGS APPENDIX

None.

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